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EXAMINER
POLLACK, MELVIN H

ART UNIT	PAPER NUMBER
2152	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

Office Action Summary	**Application No.** 09/451,802	**Applicant(s)** SUNDAR, MURALI	
	Examiner Melvin H Pollack	**Art Unit** 2152	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 December 1999</u> .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-21</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-21</u> is/are rejected.

7)☒ Claim(s) <u>8 and 13</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>01 December 1999</u> is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____ .

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)		4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .	
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)		5) ☐ Notice of Informal Patent Application (PTO-152)	
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .		6) ☒ Other: *see attached office action* .	

DETAILED ACTION

Drawings

1.   This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Claim Objections

2.   Claim 8 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 8 is drawn to the limitation that the mobile agent travels autonomously between the selected networked computers. But claim 1 already includes this limitation, and claim 8 inherits the limitation from claim 1 through claim 7.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4.   Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5.   Claim 8 recites the limitation "mobile agent" in claim 7. There is insufficient antecedent basis for this limitation in the claim. It is unclear if the term means the "mobile monitoring

agent" of claim 7 or the "mobile software agent" of claim 1. For purposes of this examination,

the examiner has interpreted the term to mean the latter.

6.   Claim 13 recites the limitation "the trip report" in claim 12. There is insufficient

antecedent basis for this limitation in the claim. Neither claims 1 and 12 mention the "trip

report," although claim 11 does.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

8.   Claims 1-4, 7-9, 11, 15-17, 20, 21 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Johnson et al. (5,987,135).

9.   For claim 1, Johnson teaches a method (see abstract) of managing the state (col. 1, lines

40-43) of networked computers (col. 1, lines 6-10), comprising:

        a.   Specifying a preferred state (col. 5, lines 29-30, as the specific agent to download

        can determine which state to keep the assigned computer in. Furthermore, it would be

        impossible to fulfill the role of monitoring a system if there was no specific state upon

        which to compare the monitored information. Therefore, this step is obvious for this

        given application.);

        b.   Defining selected networked computers to be maintained in the preferred state

        (col. 5, lines 19-22);

c.   Monitoring the selected networked computers (col. 4, line 65 – col. 5, line 11) for deviation from the preferred state (for example, col. 5, line 6: "check for virus." The invention checks for viruses (monitors the computer) to see if any are present (deviation from preferred state). Other examples are also present in that section.); and

d.   Bringing the selected networked computers that deviate from the preferred state to the preferred state (to continue the example of part c, col. 5, line 7: "cleanse viruses," which brings the computer back to the preferred state) via a mobile software agent (col. 2, lines 5-6) that travels autonomously between the selected networked computers (see below).

10.   Johnson teaches that there are mobile software agents, which can move from the server to the client upon request from either server or client. While Johnson does not expressly disclose that the agents may travel autonomously, such a change would be a simple automation of a manual process, which the office regards as obvious. Richardson (6,317,788) teaches that the agents travel autonomously (col. 3, lines 20-23) and also teaches many of the same limitations as Johnson. Both teachings are drawn to networked computers that use mobile agents to perform system monitoring and respond to changes from the preferred state. At the time the invention was made, one of ordinary skill in the art would have used autonomous agents from Richardson's network management system to perform the monitor and change techniques from Johnson's network management system in order to automate the process.

11.   As for claim 2, Johnson teaches that the method of specifying a preferred state further comprises:

a.   Defining a preferred software configuration of a computer (col. 5, lines 3-4);

b.   Defining actions needed to bring the computer to the desired software

configuration if the computer is not in the preferred software configuration (col. 5, line

5).

12.   As for claim 3, Johnson teaches that defining selected computers to be maintained in the

preferred state comprises generating a list of networked computers to be maintained in the

preferred state (col. 6, lines 33-35).

13.   As for claim 4, Johnson teaches that the mobile software agent travels between the

selected networked computers by traveling to the computers on the list of networked computers

to be maintained in the preferred state (col. 5, lines 34-37). The issue of agents traveling

autonomously is already addressed in the claim 1 discussion above. At the time the invention

was made, one of ordinary skill in the art would have combined the two inventions for the

reasons above.

14.   As for claim 7, Johnson teaches that monitoring the selected networked computers for

deviation from a preferred state is performed via a mobile monitoring agent (col. 4, line 65 – col.

5, line 11).

15.   As for claim 8, Richardson teaches that the mobile agent travels autonomously between

the selected networked computers (see claim 1). At the time the invention was made, one of

ordinary skill in the art would have combined the two inventions for the reasons listed above.

16.   As for claim 9, Johnson teaches that the mobile software agent that brings the selected

networked computers that deviate from the preferred state to the preferred state also performs the

monitoring the selected networked computers for deviation from the preferred state by first

monitoring each selected networked computer it travels to for deviation from the preferred state

and subsequently bringing the computer to the preferred state if it deviates from the preferred state (It is shown above that an agent can have a monitor capability and another agent can have a correction capability. But the above says that an agent can "perform any or all of the following functions" in col. 5, line 1. That is, the same agent can perform both monitor and correction functions.).

17.   As for claim 11, Johnson teaches that there is a trip report from the mobile software agent to a host system (col. 6, lines 7 and 17-20).

18.   As for claim 15, Johnson teaches that the selected networked computers have a mobile software agent host program (col. 1, line 66 – col. 2, line 16) thereon to facilitate mobile software agent travel (col. 3, lines 8-15) and execution (col. 5, line 54 – col. 6, line 23).

19.   Claims 16 and 17 are machine-readable medium with instructions stored thereon, the instructions operable when executed to cause a computer to implement the method of claim 1. The following steps, which Johnson teaches, are added to claim 16:

    a.   Receive and store data defining a preferred state of computers (col. 5, lines 29-30);

    b.   Receive and store data defining selected networked computers to be maintained in the preferred state (col. 5, lines 19-22);

    c.   Generation of the mobile software agent (col. 3, lines 8-15).

20.   The prior art teaches that the software implementation that performs the steps in a method is functionally equivalent to the method itself. Official notice is taken that instructions are stored on machine-readable mediums such as disks, and that computer instructions can be executed. Therefore, if claim 1 is rejected, then claims 16 and 17 are rejected for the reasons above.

21.   Claim 20 is drawn to a computerized networked computer management system (see

abstract of Johnson) that implements the method in claim 1. The prior art teaches that an

implementation of a method is functionally equivalent to the underlying method. Therefore, if

claim 1 is rejected, then claim 20 is also rejected for the reasons above.

22.   Claim 21 is drawn to similar limitations as claim 1. The only difference is that the agent

is "sent" rather than "traveling autonomously," which Johnson teaches (col. 5, lines 29-30).

Therefore, if claim 1 is rejected, then claim 21 is also rejected for the reasons above.

23.   Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson

and Richardson as applied to claims 1-4, 7-9, 11, 15-17, 20, 21 above, and further in view of

Hamner et al. (6,076,106).

24.   For claim 5, neither Johnson nor Richardson expressly disclose defining selected

computers to be maintained in the preferred state comprises defining a network space of

computers to be maintained in the preferred state. Hamner teaches placing the set of computers

to be maintained into a group (col. 1, lines 62-67). Johnson does teach that there are times when

a group of computers should be configured so that they have the same agents (col. 6, lines 49-55)

and the addition of Hamner, another method of using remote agents to manage a network, will

fulfill this goal. Therefore, at the time the invention was made, one of ordinary skill in the art

would have added Hamner groups to the Johnson/Richardson network management method so

that a server could control, monitor or update a similar group of computers at the same time

without too much hassle.

25.   As for claim 6, Hamner teaches that the mobile software agent autonomously travels

between the selected networked computers by traveling to the computers in the networked space

of computers to be maintained in the preferred state (col. 5, lines 40-44). However, such a

limitation can be implied in Jacobson. In Jacobson, an agent can travel to all the computers in a

group, where the group consists of one computer or the entire network. Hamner shows that

subset groups can be implemented, and therefore an agent can travel to all the computers in a

subset if the agent thinks that the subset is the entire network. At the time the invention was

made, one of ordinary skill in the art would have added Hamner groups to the

Johnson/Richardson network management method for the reasons above.

26.   Claims 10, 12-14, 18, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Johnson and Richardson as applied to claims 1-4, 7-9, 11, 15-17, 20, 21 above, and further in

view of Walsh (6,233,601).

27.   For claim 10, neither Johnson nor Richardson expressly discloses how the agent travels

from the server to the client, although it is obvious that some mechanism exists. Walsh teaches

that the mobile software agent travels autonomously between the selected networked computers

by transferring itself from a present computer to a next computer, and erasing itself from a

present computer after it has successfully transferred itself to the next computer (col. 4, lines 46-

57). At the time the invention was made, one of ordinary skill in the art would have added the

agent mobility rules to the Johnson/Richardson combination so that the method could be

implemented.

28.   As for claim 12, neither Johnson nor Richardson expressly discloses that the mobile

software agent is further operable to travel to computers not among the selected networked

computers to transfer data. Walsh teaches that an agent can modify its itinerary (col. 2, lines 46-

47) so that the agent can travel to a new computer. This method can provide the

Johnson/Richardson combination with greater flexibility, as an agent can determine that it should

travel to a new location. The method also allows the agent to discover the new destination

information if the old information is incorrect (col. 2, lines 1-2). At the time the invention was

made, one of ordinary skill in the art would have placed the agent flexibility rules into the

Johnson/Richardson mobile agents in order to gain a more robust management system.

29.   As for claim 13, Johnson teaches that the mobile software agent maintains the trip report

that is reported to a host computer, as shown in the claim 11 discussion above. Johnson and

Richardson do not explicitly teach the return of the mobile software agent to the host computer.

Walsh teaches, as shown above, that the agent can move from computer to computer, and the

functionality of the agents' itinerary list (col. 2, lines 41-46) makes it trivial to implement this

policy. A user simply has to list the host as the final definition, and use a report command as the

final action. Further, Walsh shows that the host is sent a trip report at every stage of the trip (col.

2, lines 47-50), including the last leg when it returns to the server. By allowing the agent to

return to the server, the management system can perform better cleanup routines. At the time the

invention was made, one of ordinary skill in the art would have allowed Johnson agents to return

to the server in order to free up resources on the client computer and to signal to the server that

the tasks were completed.

30.   As for claim 14, Johnson teaches that the mobile software agent sends a trip report to the

host computer periodically as it travels between the selected networked computers, as shown

above.

31.   Claim 18 is drawn to a machine-readable medium with instructions stored thereon, the

instructions operable when executed to cause a computer to implement the method of claim 1.

The following steps are added by claim 18, which Walsh teaches:

    a.   Selected computer is "first computer" (col. 3, lines 19-21);

    b.   Copy the executable instructions operable to perform the monitoring, bringing to

    a preferred state, (Johnson teaches, as shown above) and copying functions to a second

    networked computer (col. 4, lines 52-54).

32.   The purpose of these added methods is to implement the mobility of the agents. Johnson

does not expressly disclose the method of transporting an agent from system to system.

However, it is obvious that some method of transporting the agent is necessary to fulfill

Johnson's goal of moving the agent. At the time the invention was made, one of ordinary skill in

the art would have used Walsh as a teaching on how to implement the agent mobility that

Johnson and Richardson requires.

33.   The prior art teaches that the software implementation that performs the steps in a method

is functionally equivalent to the method itself. Official notice is taken that instructions are stored

on machine-readable mediums such as disks, and that computer instructions can be executed.

Therefore, if claim 1 is rejected, then claim 18 is rejected for the reasons above.

34.   As for claim 19, Walsh teaches that a computer removes the executable instructions

operable to perform the monitoring, bringing to a preferred state and copying functions from the

first networked computer after the instructions are successfully copied to the second networked

computer (col. 4, lines 54-57). Johnson teaches that the agents can be deleted (col. 6, lines 5-9)

at specified times, but does not explicitly disclose that one of those occasions can be after an

agent moves to a new computer. However, a move indicates that the agent has completed its

mission on that computer, and therefore marks an opportunity for data cleanup. At the time the

invention was made, one of ordinary skill in the art would have combined the inventions for the

reasons above.

Conclusion

35. The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. Aguilar et al. (6,298,397), Meyer et al. (6,289,378), and Nishida et al. (6,343,311)

disclose other implementations of using mobile agents to manage networked computers.

Razzaghe-Ashrafti (6,330,715), Slivka et al. (6,256,668), and McCormack et al. (6,360,255)

disclose other implementations of using mobile agents to monitor and update the software of

networked computers. Hayes, Jr. (6,339,826) discloses a network management system that

groups computers. Iizuka (6,029,198) and Bengley et al. (6,360,246) disclose detailed reporting

methods in management systems. Papierniak et al. (6,317,794) teaches a method of

synchronizing the data. Jin et al. (6,330,689) and Kozuka (6,289,394) teach some background on

agent management.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Melvin H Pollack whose telephone number is (703) 305-4641.

The examiner can normally be reached on 8-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mark H Rinehart can be reached on (703) 308-4815. The fax phone numbers for the

organization where this application or proceeding is assigned are (703) 746-7239 for regular

communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 305-3900.

MHP
August 2, 2002

ROBERT B. HARRELL
PRIMARY EXAMINER